CLAIMS

1. A system of providing a gas comprising oxygen at a purity of 30% or greater by volume for the aquafarming of marine animals comprising: a plurality of containment vessels, each of said containment vessels capable of containing a plurality of marine animals and an aqueous medium; a plurality of oxygen injectors, at least one oxygen injector disposed in at least one location of each of said plurality of containment vessels; and a plurality of oxygen generators, each of said plurality of oxygen generators are in fluid communication with at least one of sid plurality of oxygen injectors whereby the plurality of oxygen generators provides the containment vessels with an amount of oxygen sufficient to increase the percentage of dissolved oxygen within the aqueous medium.

2. The system of claim 1 further comprising a food source in fluid communication with at least one of said plurality of oxygen injectors.

3. The system of claim 2 further comprising a medicine source in fluid communication with at least one of said plurality of oxygen injectors.

4. The system of claim 1 further comprising an ozone source in fluid communication with the at least one of said plurality of oxygen injectors.

5. The system of claim 4 wherein the ozone source is in fluid communication with at least one of said plurality of oxygen generators.

6. The system of claim 1 wherein said plurality of oxygen generators operates via vacuum swing absorption.

7. The system of claim 1 wherein said plurality of oxygen generators are located proximally to said containment vessels.

8. The system of claim 1 wherein at least one of said plurality of oxygen generators is mounted on wheels.

9. The system of claim 1 wherein at least one of said plurality of oxygen generators is mounted onto a floatable support.

10. The system of claim 9 wherein said at least one oxygen generator is disposed within the containment vessel.

11. The system of claim 1 wherein the dissolved oxygen content is greater than 4 mg/l.

12. The system of claim 1, wherein more oxygen is added to said containment vessels at night than during the day.

13. The system of claim 1 further comprising:

a sensor for measuring the content of dissolved oxygen C_o within the aqueous medium in at least one of said plurality of containment vessels; and

a central processing unit in electrical communication with the sensor and at least one of said plurality of oxygen generators wherein the central processing unit compares the oxygen content C_o against a set point value C_{set} and activates the at least one oxygen generator when the oxygen content C_o is below set point value C_{set}.

14. The system of claim 1 wherein the at least one containment vessel comprises a plurality of shrimp having a shrimp biomass density at harvest of at least 0.5 kg/m^2 or greater.

15. A method for determining the location of one or more aeration devices within a containment vessel comprising an aqueous medium for marine animals, the method comprising the steps of:

inputting the geometry of a containment vessel into a modeling program;

inputting the geometry of one or more aeration devices into said modeling program;

defining the one or more locations of said one or more aeration devices within said containment vessel;

generating a computational mesh for said containment vessel with said one or more aeration devices within said containment vessel;

solving the hydrodynamic and mass transfer equations to determine the flow rate and direction of flow of said aqueous medium within said containment vessel.

16. The method of claim 15, further comprising the step of analyzing said flow rate and said direction of flow; inputting the geometry of one or more different aeration devices into said modeling program and repeating the defining, generating and solving steps for said one or more different aeration devices.

17. The method of claim 15, further comprising the step of analyzing said flow rate and said direction of flow, and if the flow rates for a majority of the volume of said aqueous medium in said containment vessel is not between 4 cm/sec and 20 cm/sec, then further comprising the additional steps of defining new locations for said one or more aeration devices and repeating the generating and solving steps for said one or more aeration devices in said new locations until the flow rates for a majority of the volume of said aqueous medium in said containment vessel is between 4 cm/sec and 20 cm/sec.

18. A containment vessel for the aquafarming of marine animals comprising one or more aeration devices, and an aqueous medium within said containment vessel, said aeration devices move said aqueous medium to form at least one circular

vortex comprising the movement of at least a majority of said aqueous medium in said at least one circular vortex.

19. The containment vessel of claim 18 comprising two or more aeration devices and said two or more aeration devices move said aqueous medium to form at least two complementary circular vortexes comprising the movement of at least a majority of said aqueous medium in said at least two circular vortexes.

20. The containment vessel of claim of claim 18 wherein said majority of said aqueous medium moves at a flow rate of between 4 and 20 cm/sec.

21. The containment vessel of claim 19 wherein said majority of said aqueous medium moves at a flow rate of between 4 and 20 cm/sec.

22. The containment vessel of claim 18 comprising a bottom of the vessel and sludge, wherein said sludge collects in an area that is less than 20% of the area of the bottom.